

Reconstruction of weighing and metering system of the cement grinding shop No2

Customer: JSC “KarCement”, Karaganda region, Aktau

Reconstruction object: grinding shop No2, cement grinding mills No3,4.

RECONSTRUCTION OBJECT SPECIFICATION

Reconstruction object is metering conveyors complex of the cement grinding shop No2. 5 conveyors (metering devices) are installed on each line. Metering devices provide continuous main material (clinker) transfer and required amount of additives (slag, mineral white, non-condition) to the assembly line, which send material directly to the cement grinding mill. Material metering should be carried out depending on the specified formulation. The reconstruction was carried out because of significant maintainability reducing of old weight measurement system, it often led to accidents, lengthy downtimes and getting defective products.



Requirements to automation system

- equipment reliability
- measurement accuracy
- accuracy maintaining of specified productivity and formulation.
- service availability
- electric drives work monitoring

SOLUTION AND AUTOMATION SYSTEM CHARACTERISTICS

Control system is realized on the basis of PLC Simatic S7-300, CPU313C- 2PtP. SIWAREX U was used as a weight measurement module, which allows to integrate weight measurement functions in SIMATIC completely. In the technological plan SIWAREX U carries out all functions of weight measurement equipments, also it forms weight measure and controls excess of its limit value.

SIWAREX U offers following functions:

- alignment of the weighing machines (including theoretical alignment)
- measurend filtration
- weight calculation
- zero release
- Limit value control (Min/Max).



For comfortable service, Diagnostic and monitoring system was developed on the basis of personal computer with using of software package WinCC 6.0. Graphic structure of software allows to an operator controlling regimes of metering device work, to trace and react to the all electric drive emergency and pre-emergency situations in time.

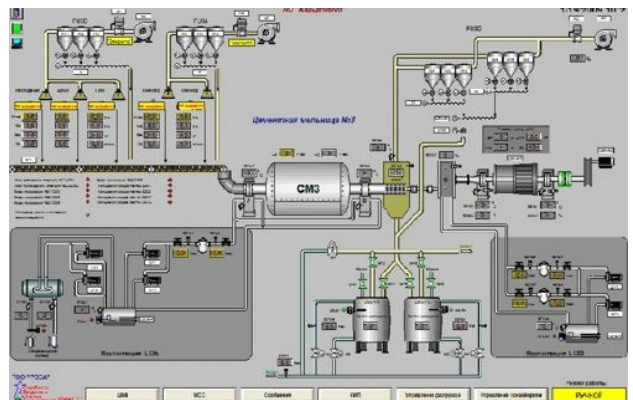
There are two conveyor operating modes. Controlling conveyor by hand, an operator sets speed task either from the push-button station or from the control station, using buttons “more” or “less”. Controlling conveyors in automatic mode, an operator sets either production task for each conveyor in the conveyor control window (tonnes per hour), or sets one or another formulation. An operator can change the formulation, i.e. correct percentage rating of additives (slag, mineral white) or choose another formulation without technological process shutdown.

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Control system allows aligning weight convayer units without using special programs. Alignment is made directly from the control station. Inductive sensors are installed for turning of band conveyors control. Weight conveyor control system works with cement grinding technological process control system jointly. This system is realized on the ABB equipment. Data exchange between two conveyors is carried out with the help of SCADA system.

Project implementation period

Project implementation period is 2 months, commissioning is 2008



Управление рецептами		Производительность чиллинга		Наименование рецепта	
		Qm	0	т/час	Рецепт № 1 2 3 4
<div> <div> Рецепт №1 Марка цемента: портландцемент с добавкой М400 (ГОСТ 400 - Д20) ГОСТ 10178 Добавки: шлак 10% (+/-5%), гипс 0-7% </div> <div> Рецепт №2 Марка цемента: шлакопортландцемент М400 (ГОСТ 400) ГОСТ 10178 Добавки: шлак 30% (+/-5%), гипс 0-7% </div> <div> Рецепт №3 Марка цемента: шлакопортландцемент М300 (ГОСТ 400) ГОСТ 10178 Добавки: шлак __% (+/-5%), гипс __% </div> </div>					
Шлак, %	0,0	Шлак, %	0,0	Шлак, %	0,0
Гипс, %	0,0	Гипс, %	0,0	Гипс, %	0,0
Q клинкер	0,0 т/час	Q клинкер	0,0 т/час	Q клинкер	0,0 т/час
Q шлак	0,0 т/час	Q шлак	0,0 т/час	Q шлак	0,0 т/час
Q гипс	0,0 т/час	Q гипс	0,0 т/час	Q гипс	0,0 т/час
Принять	Сбросить	Принять	Сбросить	Принять	Сбросить